

Shortness of breath after EVLT

A WORD OF CAUTION

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Medical History

A 64 year old patient was admitted to the hospital because of progressive exercise induced shortness of breath since one week. Four weeks earlier EndoVenous Laser Therapy (EVLT) was performed on his right great saphenous vein.

The duplexsonography control performed after EVLT showed a level 3 thrombus according to the classification system of Lawrence et al (1). Thrombosis prophylaxis was implemented for 10 days together with compression stockings of the calf. The medical history was uneventful, no thromboembolic events were reported in first degree relatives.

Clinical presentation

At admission we found a male patient with slightly hypertensive blood pressure, normocard, with an oxygen saturation of 94 % and attenuated breath sounds over the right lung. There was no swelling, erythema or pain of the right leg.

Laboratory tests

The D-dimer – and CRP-level were significantly elevated (4.47 µg/ml and 100 mg/ml, respectively). The number of white blood cells and the arterial blood gas analysis were within the normal range.

Duplex ultrasonography

The great saphenous vein on the right side in the treated region was occluded, a thrombus ended at the sapheno-femoral junction. The compression ultrasonography of both deep leg veins was negative of further manifestations of thrombosis (see **Fig 1**).

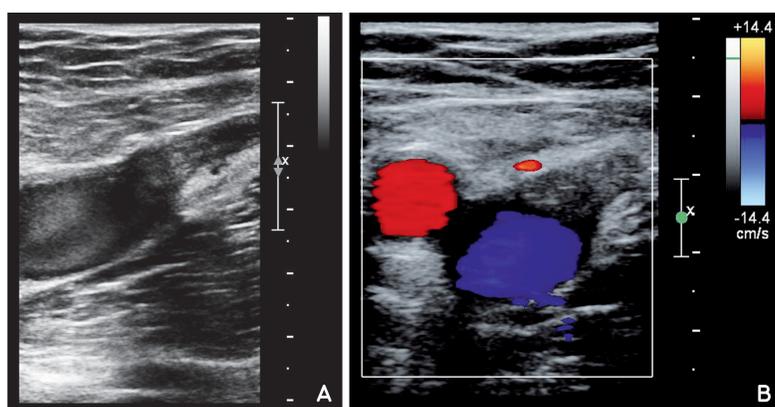


Figure 1 Sapheno-femoral junction on the right side with thrombus in B-mode longitudinal scan (A) and Color-mode axial scan (B).

The spiral computed tomography (CT) of the lung showed central and paracentral pulmonary embolism (see **Fig 2**) with a consolidation posterobasal and in the lateral middle lobe corresponding to a pulmonary infarction.

Further course

The patient was treated with Phenprocoumon (initially in addition to Dalteparin) and could be discharged after four days of hospital stay.

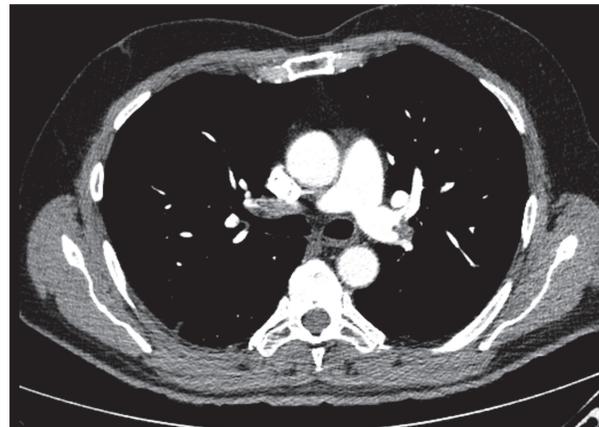


Figure 2
CT scan lung

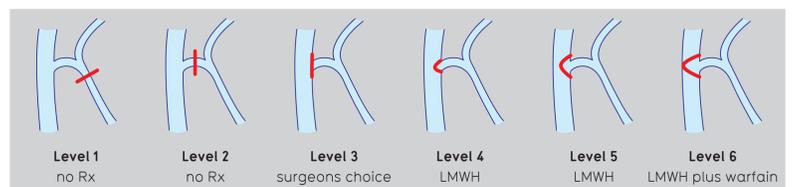


Figure 3 Closure level according to Lawrence et al (1)

Discussion

The EVLT is a very elegant and rapidly expanding method of treatment of varicose veins. Because of the minimally invasive character of the procedure and the excellent technique success rates, the method is increasingly requested by patients. Studies have shown the safety of the method. Until now there are only few reports of deep venous thrombosis (DVT) and even lesser of pulmonary embolism (PE). Mozes et al (2) described a rate of 7.7 % of DVT and Puggioni et al (3) of 2.2%, mostly because of thrombus extension into the common femoral vein.

There are several precautions to minimize the risk of a thromboembolic event. During the procedure the laser tip should be located 2 cm distant to the sapheno-femoral junction. The Trendelenburg position of the patient causes a collapse of the vein and enhances the contact between the laser fiber tip and the vessel wall for a better transmission of the heat and therefore a better occlusion rate of the vein. After the procedure the patient is immediately mobilized and the application of compression stockings are mandatory. A postprocedural short term use of prophylactic low molecular weight heparin is common. In addition repeated venous duplex ultrasound is performed in order to detect such complication as a endovenous heat induced thrombosis.

Our case shows that despite all these precautions remains the closure level 3 after treatment might need anticoagulation in therapeutic dosis and further controls of follow up after 1 week.

Literature

- 1) Lawrence PF., Ankur C., Wu C., Rigberg D., DeRubertis B. et al.: Classification of proximal endovenous closure levels and treatment algorithm. *J Vasc Surg.* 2010;52:388-393
- 2) Mozes G., Kalra M., Carmo M., Swenson L., Gloviczki P.: Extension of saphenous thrombus into the femoral vein: a potential complication of new endovenous ablation techniques. *J Vasc Surg.* 2005;41:130-135
- 3) Puggioni A., Kalra M., Carmo M., Mozes G., Gloviczki P.: Endovenous laser therapy and radiofrequency ablation of the great saphenous vein: analysis of early efficacy and complications. *J Vasc Surg.* 2005;42:488-493